**Thinking Like a Scientist**

Read the scenarios below and brainstorm explanations for the observations. Use the explanations to form several possible hypotheses. Then develop one or more experiments to test your hypotheses.

**Scenario 1**

You have often noticed that ants follow one another in a trail to food. How do they know to follow each other in the trail? Do they have a form of communication that we can't hear or see? Or do they follow the trail because they see other ants following the trail?

Make several hypotheses that could explain why ants follow one another in a trail to food. Then design an experiment to test one of your hypotheses. What results would you observe if your hypothesis is true? What results would you observe if your hypothesis is false?

**Scenario 2**

When opening a container of cranberry juice, you noticed the label "refrigerate after opening." You also notice this label on a variety of other food containers, such as mayonnaise bottles and tuna cans. Why does the food have to be refrigerated once the can or bottle is opened, but not before? What would happen if the food were not refrigerated after opening? What does refrigeration do?

Make several hypotheses that could explain why certain foods can remain unrefrigerated before opening, but not after opening. Then design an experiment to test one of your hypotheses. What results would you observe if your hypothesis is true? What results would you observe if your hypothesis is false?

**Scenario 3**

You are at the top of Mt. Haleakala, a dormant volcano that rises over 10,000 feet above the island of Maui in Hawaii. You noticed that a person nearby is talking about starting to feel dizzy, while someone else is complaining about a sudden headache. You feel fine. Why are some people feeling sick when others are not? Is it the air around the volcano? Is it the altitude? Or are the problems completely unrelated to the location?

Make several hypotheses that could explain why certain people feel sick at the top of Mt. Haleakala while others do not. Then design an experiment to test one of your hypotheses. What results would you observe if your hypothesis is true? What results would you observe if your hypothesis is false?